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Federal Communications Commission  
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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
 )  
Revision of the Commission's Rules )  
To Ensure Compatibility with )  
Enhanced E911 Emergency Calling Systems )

CC Docket 94-102

**MIDWEST WIRELESS COMMUNICATIONS L.L.C.  
PETITION FOR TEMPORARY WAIVER OF THE  
E911 PHASE II ENHANCED WIRELESS SERVICES**

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Midwest Wireless Communications L.L.C. (hereinafter "Petitioner"), by its attorneys, hereby requests a temporary waiver to the wireless E911 location technology phase-in requirements of the Commission's rules, 47 C.F.R. 20.18(f)<sup>1</sup> and (g)<sup>2</sup> in the state of Minnesota. Specifically, Petitioner seeks a temporary waiver of the requirement that Commercial Mobile Radio Service (CMRS) carriers selecting a network-based Phase II E-911 solution follow a phased in implementation schedule beginning October 1, 2001. As set forth below Petitioner currently is in the testing and implementation stages of E-911 Phase 1. Despite concerted good-faith efforts, Petitioner has not been able to find a viable solution to meet the mandate in the time allocated. Other carriers have come to the same conclusion, as evidenced by the number of waiver requests before the Commission. Petitioner therefore proposes a modified schedule that will permit the deployment of a network based solution in the areas surrounding Mankato and Rochester Minnesota beginning in the 2nd quarter of 2002 for current valid PSAP requests. Such a request is consistent with the Commission's goals in this E-911 proceeding and is in the public interest.

## **I. Background**

Petitioner is a comparatively small Cellular Radiotelephone Service which offers wireless telecommunications service in rural Minnesota and in the Rochester, Minnesota MSA. In its Implementation Report filed with the Commission on November 9, 2000, Petitioner indicated its intent to employ a network Phase II E-911 solution and, consistent with Section 20.18(g) of the Commission's rules, to begin providing Phase II location information within 6 months of a valid PSAP request. However, because of Petitioner's relatively small size combined with the general

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<sup>1</sup> Third Report and Order In Re Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, 14 FCC Rcd. 17388 (released October 6, 1999).

difficulties and unique challenges faced by rural wireless carriers, compliance with Phase II by October 1, 2001 is not feasible. Petitioner has extensively studied available Phase II location technology offerings, has determined viable paths to compliance with the FCC Phase II performance requirements, and has acquired portions of the supporting technology components where commercially viable. These efforts are described below.

#### **A. Evaluation of existing technologies**

Petitioner provides wireless service to rural Minnesota and the Rochester MSA using a combination of AMPS and TDMA cellular technologies. Neither of the two categories of location technology – network-based or handset-based – has proven viable in this market. (See Petitioner’s previously delivered Implementation Plan.<sup>3</sup>)

Network based. Petitioner has contracted with a leading wireless location engineering services organization to evaluate the theoretical performance of a network-based system in Petitioner’s rural market (see Attachment A). Technocom’s acknowledges that although a network-based solution does not meet the FCC’s requirements throughout all of Petitioner’s rural markets, beneficial coverage can be obtained in areas where there are clusters of cell sites, such as Mankato and Rochester.

Handset based. As has been demonstrated in the record, vendors have not made location-enabled TDMA/AMPS handsets available to Petitioner, or to other carriers. (See, for example, AT&T’s waiver request.<sup>4</sup>) Petitioner’s sales volume is so small that it is not adequate to entice vendors to

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<sup>2</sup> Fourth Memorandum Opinion and Order In Re Revision of the Commission’s Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, 15 FCC Rcd. 17442 (released September 8, 2000) (“Fourth MO&O”)

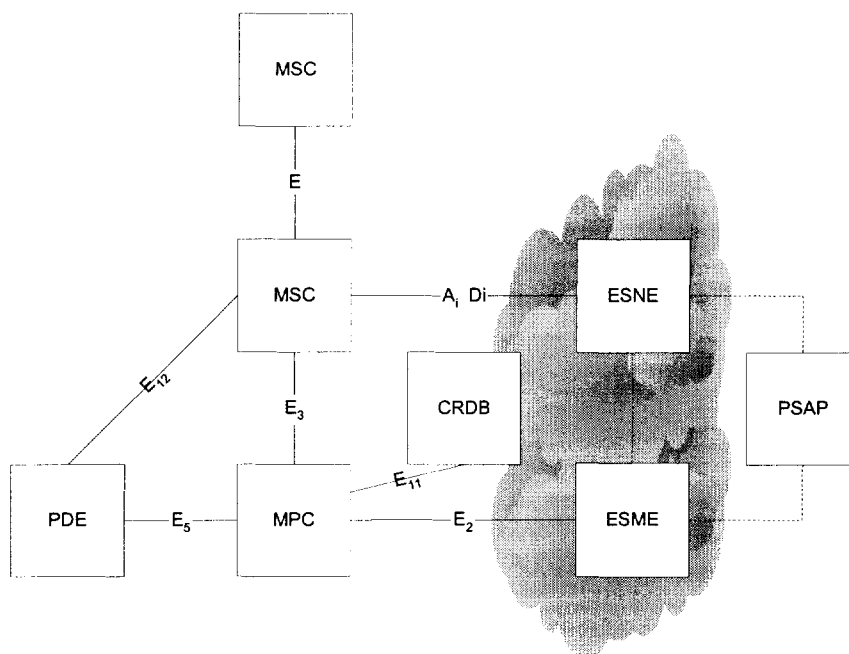
<sup>3</sup> E-911 Phase 2 Implementation Plan, Midwest Wireless Holdings L.L.C., November 9, 2000

<sup>4</sup> AT&T Wireless Services, Inc. Request for Waiver of the E911 Phase II Location Technology Implementation Rules, AT&T Wireless Services, Inc., April 4, 2001. Also see Leap Wireless International, Inc. Petition for Partial Waiver of E-911 Phase II Implementation Milestones at 13-16 (August 23, 2001); Inland Cellular Telephone Co. Petition for Limited Waiver of Section 20.18(e) and (g) of the Rules at 3 (July 30, 2001); Qwest Wireless, LLC and TW Wireless, LLC’s Petition for Extension of Time or Waiver of Section 20.18 of the Rules at 8 (July 25, 2001).

leverage this technology into their product. Petitioner has been unable to obtain a commitment from its supplier to provide location-capable handsets by the Commission's October 1, 2001 deadline for commencing the sale of Phase II-compliant handsets. As a result, handset-based location technology is not an option for Petitioner, for the foreseeable future.

## **B. Status of ongoing Midwest Wireless activities**

In spite of the difficulties of obtaining a viable location technology described above, Petitioner has pursued the groundwork for the future deployment of a compliant E911 system. A compliant E-911 system consists of several components; please refer to Figure 1 for the remainder of Section B.



**Figure 1. Emergency Services Network Reference Model**

MSC. The Mobile Switching Center (MSC) is a key component of the location services network. It provides interfaces between the voice and location services elements. Without this component Petitioner's ability to implement location services is thwarted, even if all other aspects of the network are ready. Petitioner has worked with its MSC vendor, Nortel Networks, to ensure early

delivery of a software upgrade that is compatible with E-911 Phase 2 location services. Nortel has forecasted this upgrade to be commercially available 1<sup>st</sup> quarter 2002 (see Attachment B). MPC/CRDB. The Mobile Position Center (MPC) (often hosted with the Coordinate Routing Database, CRDB), is another key component, which provides the intelligence behind the Phase II location services. Petitioner has worked diligently within the industry to define compliance standards and identify the “best of breed” MPC solution. After comprehensive due diligence Petitioner has selected and contracted with Intrado to provide Phase I and Phase II MPC services for Petitioners customers. It should be noted that Petitioner contracted for both Phase I and Phase II MPC services with Intrado in anticipation of the meeting the Phase II implementation requirements. Petitioner is currently working with Intrado and the State of Minnesota to deploy Phase 1 services in all markets where Petitioner provide cellular service.

PDE. The Position Determining Entity (PDE) performs the measurements and calculations that determine the caller’s location. As stated earlier, Petitioner continues its ongoing search for a viable PDE system.

ESME/ESNE. The Emergency Services Network Entity and Emergency Services Message Entity (ESNE and ESME) represent the 9-1-1 Tandem or Selective Router, and the Automatic Location Identification (ALI) database, which are included as components of the current Phase I emergency services network. Petitioner expects minimal changes (if any) to this equipment to support Phase II functions and fully intends to support the delivery of Phase II location data to the PSAP.

PSAP Customer Premise Equipment (CPE). Petitioner has received a Phase II request from the State of Minnesota. The Commission has, as of this time, not issued a clarification regarding the objective criteria a PSAP should be required to demonstrate at the time that it makes such a request of a carrier. It is unclear whether the PSAP has taken sufficient steps to assure that it will be able to receive and utilize the E-911 data prior to the delivery of service by the carrier. Until such time as Petitioner can determine the kinds of identifiable, measurable criteria which will

help all involved parties predict whether a PSAP will be ready to receive and utilize Phase II information within six months of the request, it is very difficult for Petitioner to set even a basic timetable for deployment.

Phase I Compliance. Petitioner has shown good faith in meeting the Commission's Phase I requirements, using the Intrado MPC plus ALI. Petitioner is currently deploying Phase I services to all markets with the support of Intrado. Petitioner continues to work closely with the State of Minnesota in the development of a statewide Phase I implementation plan.

Studies. Petitioner's study of network-based location technology viability (Attachment A) was previously mentioned. Other ongoing studies include airlink technology migration options and Phase II technology assessment and deployment planning. In addition Petitioner is carefully observing the plans of the larger carriers, who will necessarily (because of their market clout) provide some leadership in the location services area. The salient finding from the TechnoCom report is that whereas network based location solutions do not meet the FCC requirements throughout the expansive rural areas of Midwest's markets, they may provide beneficial coverage in those areas that have clusters of cell sites. The report therefore recommends an initial deployment in two areas surrounding the cities of Rochester and Mankato. Upon deployment in those areas, careful field-testing will yield a better characterization of the actual performance of the selected network-based location system. If the performance appears to promise reasonable coverage when extended beyond the initial areas, the second deployment stage will be to expand the footprint to larger areas.

### **C. The Path to Compliance**

Petitioner has declared a network-based solution in its Implementation Plan, and has developed the following proposed schedule to become compliant as soon as possible:

- Petitioner will, upon completion of the Phase I service deployment in Mankato and Rochester begin, without delay, the development of a Phase II deployment plan which includes overall system description and architecture, MSC feature

upgrades, Phase II MPC provisioning and configuration, location technology deployment and verification, and PSAP deployment coordination. It is anticipated that this will begin late first quarter 2002.

- Petitioner will purchase the Nortel MSC software upgrades specific to E911 Phase II (MTX10) as it becomes available in the first quarter of 2002.
- Petitioner will, upon completion of the Phase II deployment plan, coordinate the development of the required Phase II MPC provisioning and CRDB database development in conjunction with the requesting PSAPs. It is anticipated that this activity will start in May, 2002 for the area surrounding Mankato and Rochester.
- Petitioner will, upon completion of the Phase II deployment plan, purchase a compatible location technology component for the area surrounding Mankato and Rochester. It is anticipated that this activity will start in May, 2002.
- Petitioner will deploy and make available Phase II services to either Mankato or Rochester Minnesota by November 1, 2002. These are the most densely populated areas served by Petitioner.
- Petitioner will begin the assessment of the initial deployed area(s) and characterization of a potential “larger area” second deployment stage by May 1, 2003. This is the rectangular region centered around Interstate 35, which incorporates the two initial “circles” but includes 70 cell sites and 9600 square miles and amounts to more than 50% of Petitioner’s cell sites. (See Attachment A, Figure 3-2)

Thus, Petitioner would begin implementing location-capable technologies by the May 1, 2002 rather than October 1, 2001. Petitioner will implement this timetable in conjunction with the Minnesota State Department of Administration.



In addition, as Petitioner considers a technology change in a move towards 3G services, it continues to evaluate other options. Some leading candidates under consideration are mentioned here.

GSM E-OTD. The preferred location technology for GSM networks at this time appears to be Enhanced Observed Time Difference of arrival (E-OTD). Should Petitioner become justified in migrating its airlink from TDMA to GSM, this technology becomes a prime candidate for Petitioner's upgraded network.

CDMA handset. Likewise, the preferred location technology for CDMA networks at this time is a handset-based solution. Should Petitioner become justified in migrating its airlink from TDMA to CDMA, this technology becomes a prime candidate for Petitioner's upgraded network.

## **II. Discussion**

Generally, the Commission's rules may be waived when there is good cause shown<sup>5</sup> and "when special circumstances warrant deviation from the general rule, and such deviation will serve the public interest."<sup>6</sup> In the context of E-911, the Commission has recognized that individual waivers that are "specific, focused and limited in scope, and with a clear path to compliance" may be granted where due to "technology-related issues" or "exceptional circumstances," a wireless carrier is unable to meet the October 1, 2001 deadline.<sup>7</sup> As explained below, Petitioner's request satisfies this standard.

First, Petitioner is presenting a waiver request that is specific, focused and limited in scope. The scope of the request is limited to Sections 20.18(f) and (g). Petitioner has made good faith efforts and has successfully implemented the other sections of Section 20.18 by

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<sup>5</sup> 47 C.F.R. § 1.3.

<sup>6</sup> Fourth MO&O at 17457; Northeast Cellular Telephone Co. v. FCC, 897 F.2d 1164, 1166 (D.C. Cir. 1990) citing WAIT Radio V. FCC, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

<sup>7</sup> See id.

implementing Commission's Phase I requirements, using the Intrado MPC plus ALI. Furthermore, Petitioner only seeks a temporary waiver with respect to its service in Minnesota. Petitioner has affiliates which operate cellular systems in rural areas in Iowa and Wisconsin, however, no PSAP request has been received for Phase II deployment in those areas and those operations do not need a waiver at this time. Accordingly, Petitioner's waiver request is narrower than many others currently before the Commission.

Second, Petitioner's request is structured with a "clear path to compliance." Rather than request a "broad, generalized waiver"<sup>8</sup> or an indefinite extension, Petitioner has formulated a proposed schedule that will enable Petitioner to begin implementing location-capable technologies by May 1, 2002 instead of October 1, 2001. This mere seven month delay constitutes the best implementation timeline possible within the constraints of its supplier relationships. This timetable is based on manufacturer estimates of general availability dates ranging from the fourth quarter of 2001 to the second quarter of 2002 and the completion of current Phase I deployment activities.

Third, despite its efforts to comply with the Commission's Phase II requirements in a timely fashion, Petitioner has faced technological issues that have hindered its progress. Specifically, Petitioner has been unable to obtain vendor commitments that would allow it to begin implementing a network-based solution by the October 1, 2001 deadline. As a small carrier with a primarily rural subscriber base, Petitioner is not able to negotiate directly with the manufacturers which are rolling out network based solutions. As such, it lacks the ability that larger carriers with regional or nationwide footprints might have to demand that manufacturers provide it with the requisite technology.

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<sup>8</sup> See id.

Being one step further down the “food chain,” Petitioner cannot force manufacturers to roll out the solution needed for its specific network. Under the circumstances, Petitioner has done its best to come as close as possible to meeting the October 1, 2001 deadline by developing a compelling deployment plan which takes into account the current location technology capabilities, engaging in Phase I and II MPC and ALI service contracts and pursuing discussions with its software vendors. As demonstrated in Attachment B, Petitioner’s software vendor has confirmed that even the MSC portion of the software upgrade will not be available by the October compliance date.

Grant of the requested waiver is in the public interest. The public policy behind the Commission’s E-911 rules is to meet important public safety needs as quickly as reasonably possible.<sup>9</sup> Allowing Petitioner to introduce important public safety needs to its most densely populated areas on a more graduated schedule would serve this objective. Not only would a delay make it possible for Petitioner to provide superior location accuracy by implementing the best possible solution, the proposed implementation schedule would have no appreciable effect on the availability of Phase II E-911 in Petitioner’s service area. While Petitioner intends to continue to cooperate with any requesting PSAPs, the marginal public-interest benefit of introducing location-based handsets by October 1, 2001 would be minimal. Under these circumstances, the implementation timetable proposed herein allows for an expeditious and sensible phase-in of Petitioner’s network-based solution.

### **III. Conclusion**

For the reasons set forth above, Petitioner requests a waiver of Sections 20.18(f) and (g) of the Commission’s rules. The public interest benefit in this case equals or exceeds that which

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<sup>9</sup> See Fourth MO&O, 15 FCC Rcd at 17449.

the Commission has found in other instances to be sufficient for waiver. Accordingly, Petitioner requests that a waiver and temporary extension be granted as proposed.

Respectfully submitted,

**MIDWEST WIRELESS COMMUNICATIONS L.L.C.**

By: B. Lynn F. Ratnavale  
David L. Nace  
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Its Attorneys

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September 28, 2001

## DECLARATION

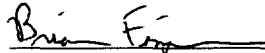
I, Brian Fingerson, hereby state and declare:

1. I am the Vice President – Engineering & Technology of Midwest Wireless Communications L.L.C., a Cellular Radiotelephone Service provider in Minnesota.

2. I am familiar with the facts contained in the foregoing Petition For Waiver, and I verify that those facts are true and correct to the best of my knowledge and belief, except that I do not and need not attest to those facts which are subject to official notice by the Commission.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 27th day of September 2001.

  
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Brian Fingerson  
Vice President – Engineering & Technology  
Midwest Wireless Communications L.L.C.

#### **IV. Attachments**

## **A. Technocom study**

# **Network Based Location Performance in Midwest Wireless Markets**

Presented to:

**Midwest Wireless**

**September 25, 2001**

By:

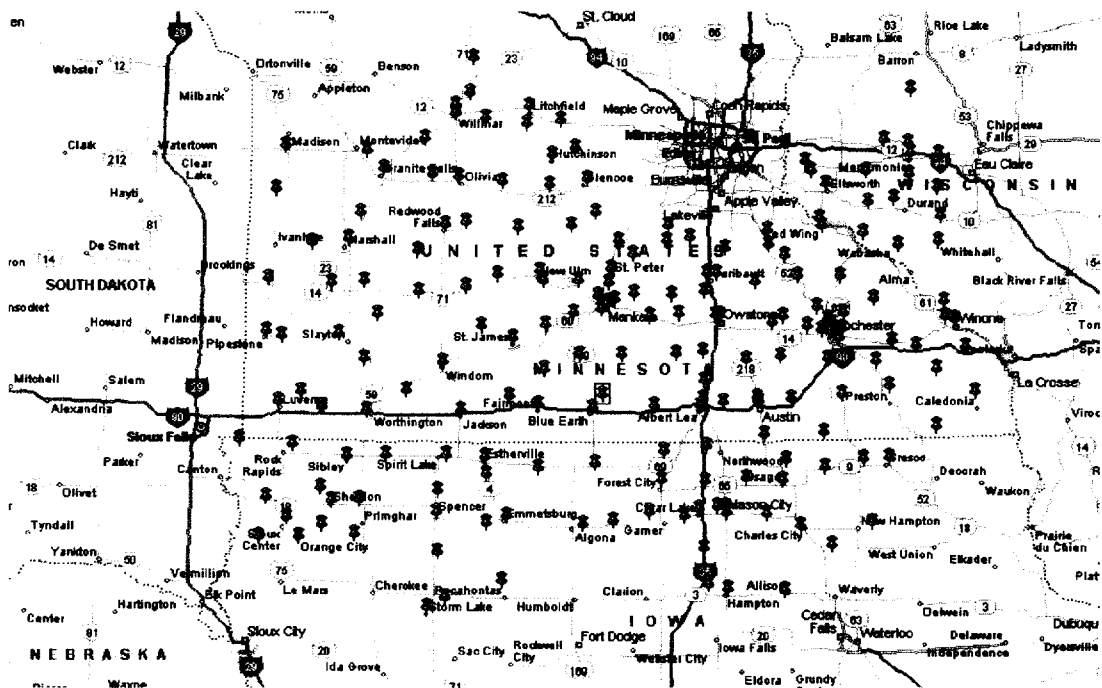
**TechnoCom**  
Wireless Location Leaders

**16133 Ventura Blvd., Suite 500  
Encino, CA 91436**



## 1. Introduction

Midwest Wireless serves 220,000 users in mostly rural areas in Southern Minnesota, Northern Iowa and Western Wisconsin. Like several other rural carriers, Midwest Wireless uses in its network TDMA technology (ANSI-136) in the 800 MHz band. The infrastructure also supports AMPS for backward compatibility and to support the significant fraction of roamers who may not be equipped with TDMA handsets (e.g., CDMA and GSM users in their home markets). Because of the rural nature of the market, the fraction of overall network users who are roamers is quite significant; it is estimated to be 24%. The cell sites comprising Midwest's coverage are depicted in the map of Figure 1-1. There are approximately 170 cell sites providing cellular coverage over an area of 70,000 square miles.



**Figure 1-1. Midwest Wireless Cell Sites**

TDMA carriers have traditionally looked for network-based location solutions to meet the FCC's E9-1-1 requirements. Handset based solutions are not at this time ready for commercial use, but more importantly, their vendors have not targeted supporting TDMA systems, at least in the foreseeable future. Thus, the viability of network based location solutions in Midwest's markets is critical to its strategy for meeting the FCC's E9-1-1 mandate.

Midwest Wireless has retained TechnoCom Corporation and its team of wireless location experts to assist Midwest with its E9-1-1 deployment strategy. One of TechnoCom's prominent tasks has been the assessment of the viability of network based location systems in Midwest's markets. This interim report

presents the results of TechnoCom's analysis pertaining to the performance of such a location system.

## **2. Analysis Approach and Results**

TechnoCom used its location system performance prediction tool, LocatePredict™ (pat. pending), to analyze the coverage of a network overlay system. The analysis focused on using the most powerful of combinations of location techniques; one which would have the best performance in the fairly sparse deployment of the cellular infrastructure. The objective here has been to bound the feasibility of all such location systems.

A combined AOA/TDOA location system has been assumed. A 1:1 cell site to location bases station deployment was also assumed. High sensitivity and accuracy TDOA processors and AOA detectors were also assumed. A 10 dB improvement in TDOA processing over typical cellular sensitive has been used; i.e., a signal of  $-125$  dBm is assumed detectable by the TDOA receiver. This enables the location receiver to "hear" mobiles in neighboring sites (at least in urban/suburban scenarios). This performance matches the best advertised by any network based location technology vendor. The time jitter at a TDOA site is assumed to be 20 ns. For the AOA component, the same sensitivity as a cellular receiver is assumed ( $-115$  dBm). Additionally, high precision, accurately calibrated AOA receivers are also assumed with an rms angular error of 1 degree.

All in all, the predictions described below correspond to a best case analysis, where a best-of-class, network-based system is deployed and maintained in the best operating condition.

The characteristics of the cellular infrastructure provided by Midwest Wireless to TechnoCom have been used, e.g., antenna heights and types. Since the vast majority of cellular users are currently hand-held units, a 0.6 W maximum handset power level has been assumed in the prediction.

The analysis reported here focused on Minnesota and included 166 cell sites and a coverage area of approximately 35,000 square miles. The analyzed area was split into an "eastern region" and a "western region" to facilitate prediction and the display of the results. In each "region" the neighboring sites were also included (also from Iowa and Wisconsin) to provide correct results in the target area of the analysis. An adequate area of overlap (approximately two "rows" of cells) was also included in each region so as not affect the performance prediction in the core.

Figures 2-1 and 2-2 provide best server plots identifying the boundaries and cellular coverage predicted for of each cell site. The cellular coverage generally looks good, with occasional areas in between distant sites that have marginal coverage. This is a situation that is commonly encountered in rural America. Some carriers go even as far as recommending vehicle mounted (3 watt units) to rural users seeking high quality of service throughout the market.

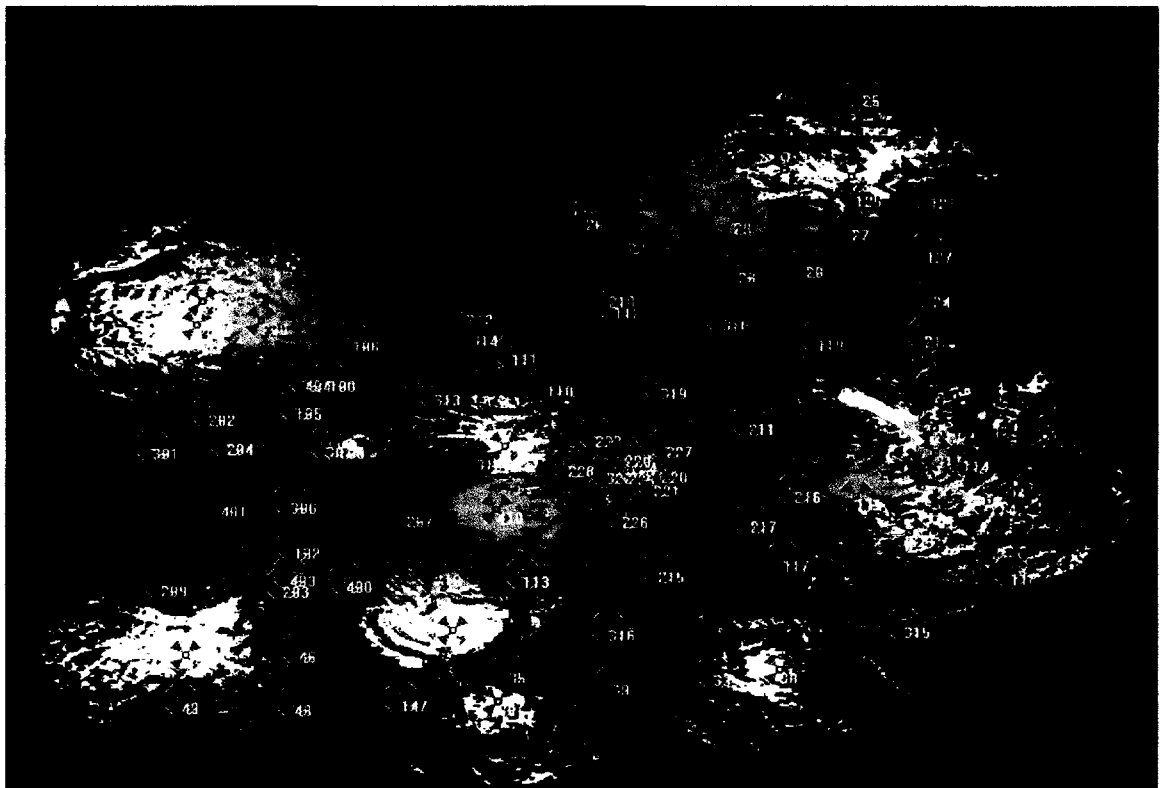


Figure 2-1. Cellular and Best Server Coverage for the Eastern Region

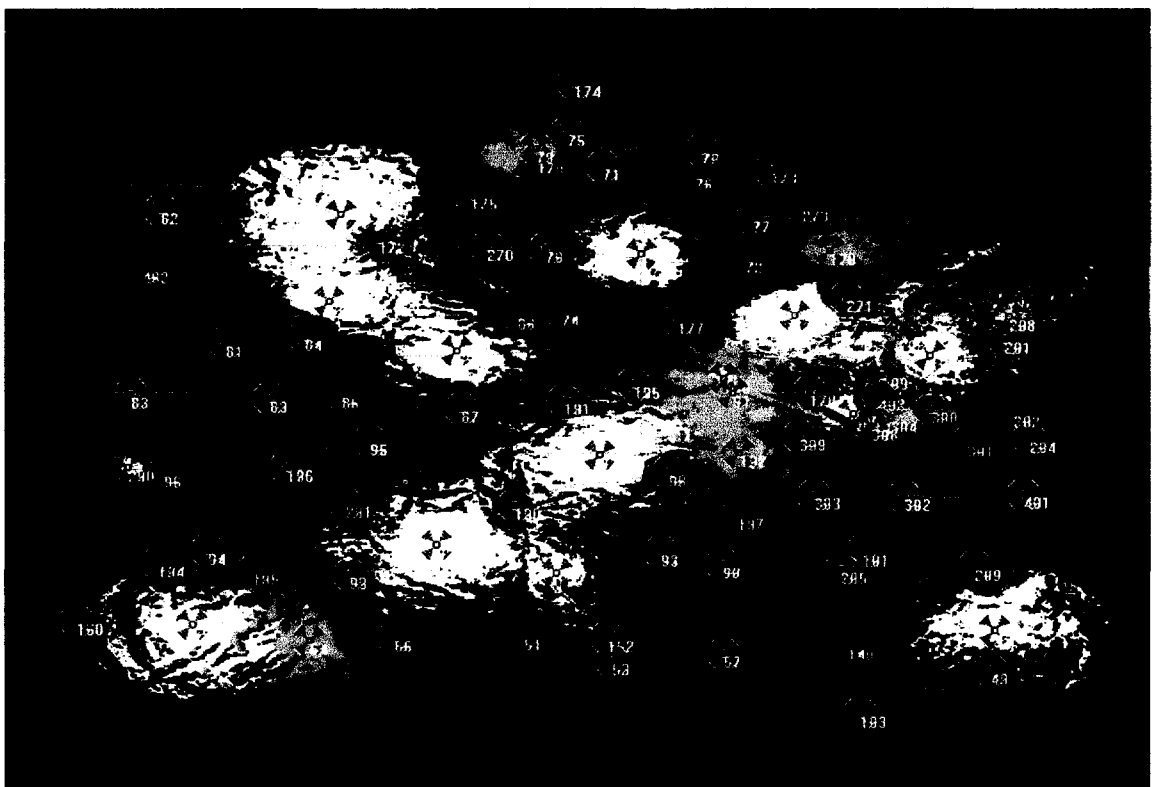
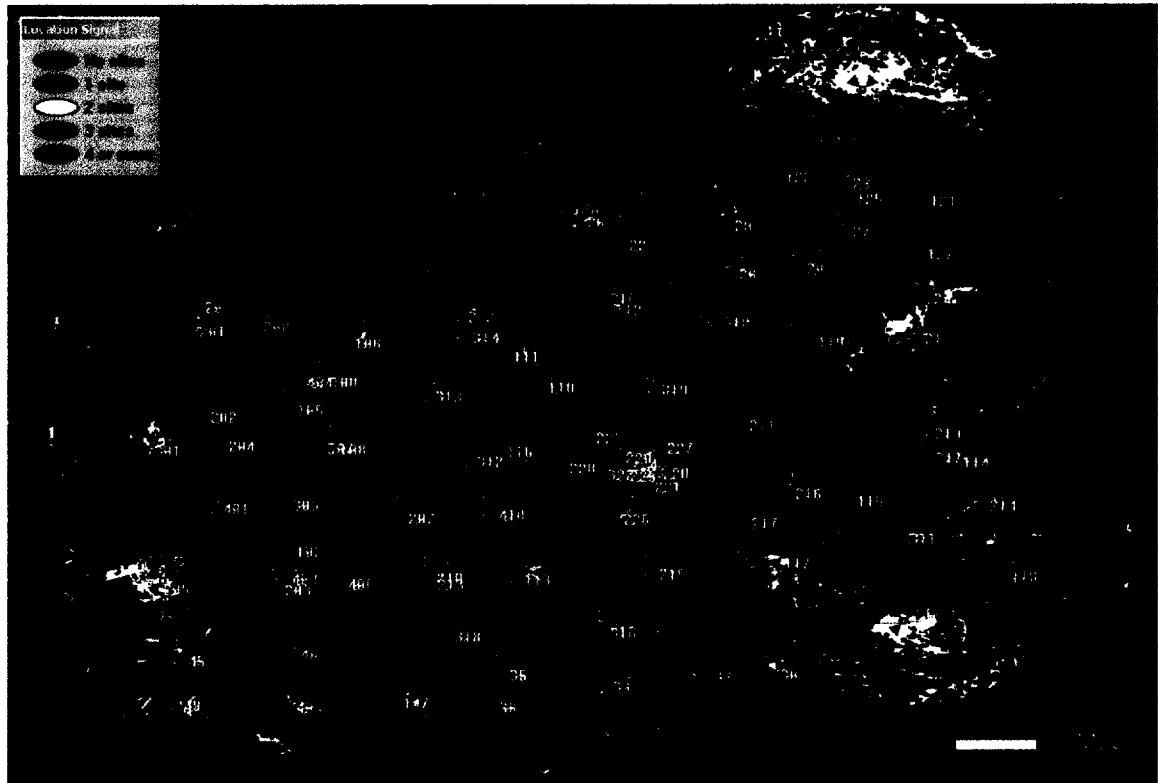


Figure 2-2. Cellular and Best Server Coverage for the Western Region

Of course the challenge for a location system is that coverage from multiple sites is required. So although cellular coverage for voice communications may be present, coverage for location purposes may well not be. This situation is examined in Figure 2-3 and 2-4, again for the eastern and western regions, respectively. It should be noted that the two figures have different scales, to accommodate the larger distances between sites in the western region. The eastern region uses a scale approximately 20% more expanded than the western region. (The scales are provided on the plots.)



**Figure 2-3. Number of Location Base Stations Providing Location Coverage (Eastern Region)**

It can be easily seen that in the eastern region, where the cell sites are closer, the location system performs better in the sense that more location base stations cover more area. Accordingly, one would expect higher location availability, and better performance in terms of lower errors, when a location is indeed computable.

In the error analysis herein, a minimum of three sites is considered required for location determination. This is the minimum under ideal conditions, but in practice, more sites result in better reliability and accuracy. Coverage from as many as 7 or 8 sites has often been observed in experimental deployments of network based solutions in suburban areas.



**Figure 2-4. Number of Location Base Stations Providing Location Coverage (Western Region)**

Even with the minimum of 3 required sites and in the eastern region, there are about five sizeable holes with very weak location coverage. In the western region, there are large areas where only sporadic location coverage exists, in fact, the location coverage appears as a collection of islands. The size of these islands is a direct function of the assumed sensitivity and accuracy of the TDOA and AOA receivers.

The location determination error corresponding to the above two figures is shown in Figures 2-5 and 2-6. The coverage in terms of number of location sites has a direct correspondence to the achievable error. Generally, for the rural setting, where there is coverage from four or more sites, the performance is expected to be good.

To better gauge the performance in both regions an area within each region, i.e., excluding perimeter sites, was cropped and further analyzed to obtain performance statistics. These zoomed core areas are shown in Figures 2.7 and 2.8. The results are summarized in Table 2-1. The coverage or location system yield is in generally poor, particularly in the western region where it is considered very poor. Even where there is coverage, the performance does not meet the FCC mandate for the 95% accuracy requirement ( which is 300 m).

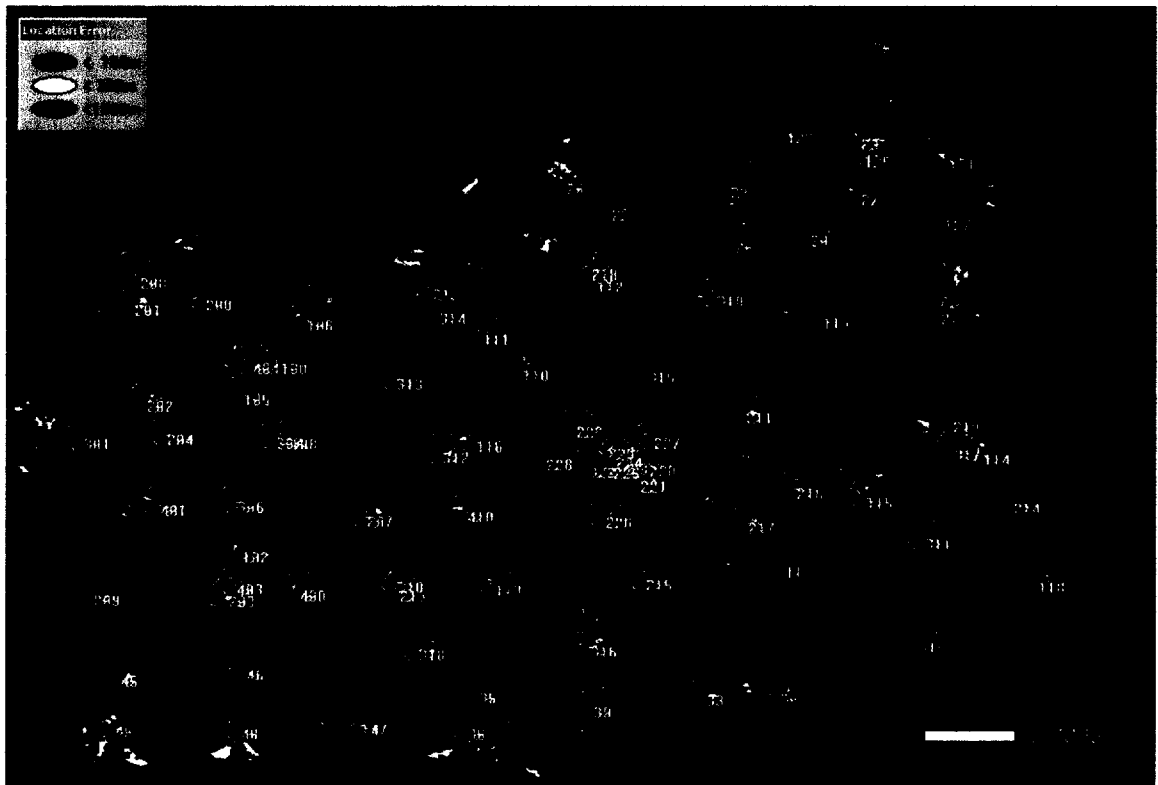


Figure 2-5. Location Error Predicted in the Eastern Region

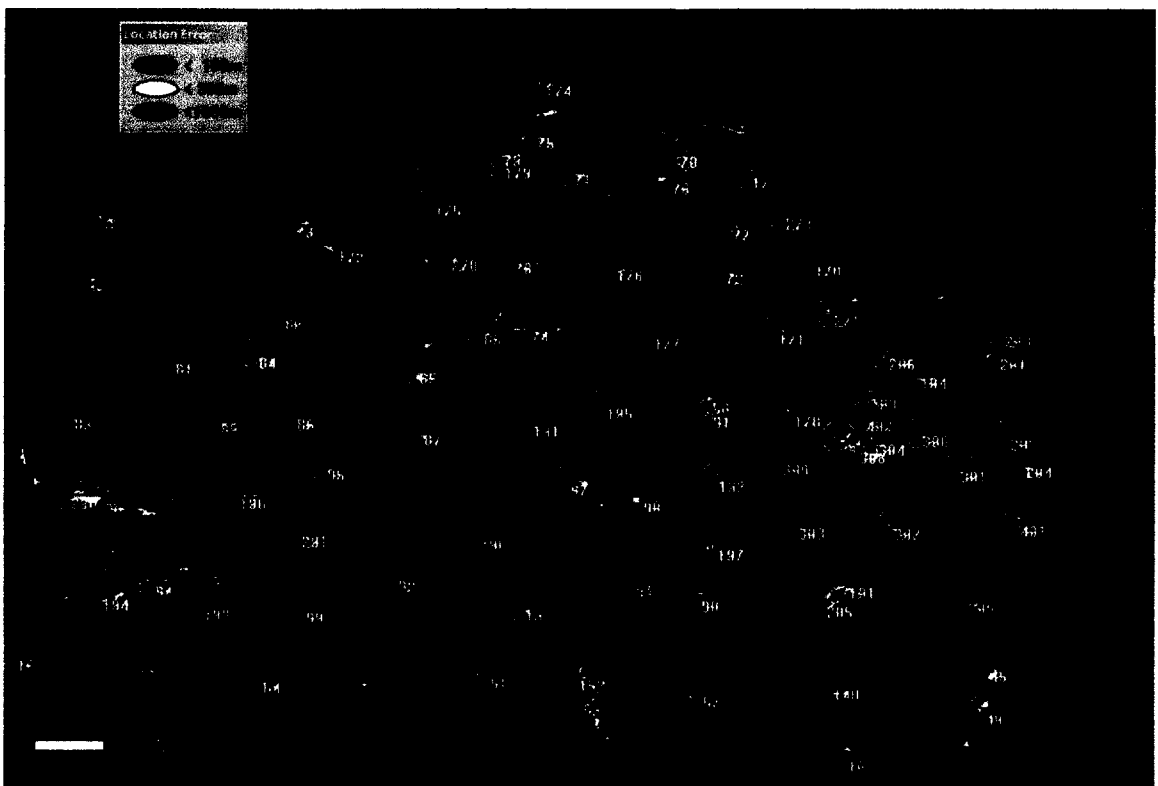


Figure 2-6. Location Error Predicted in the Western Region

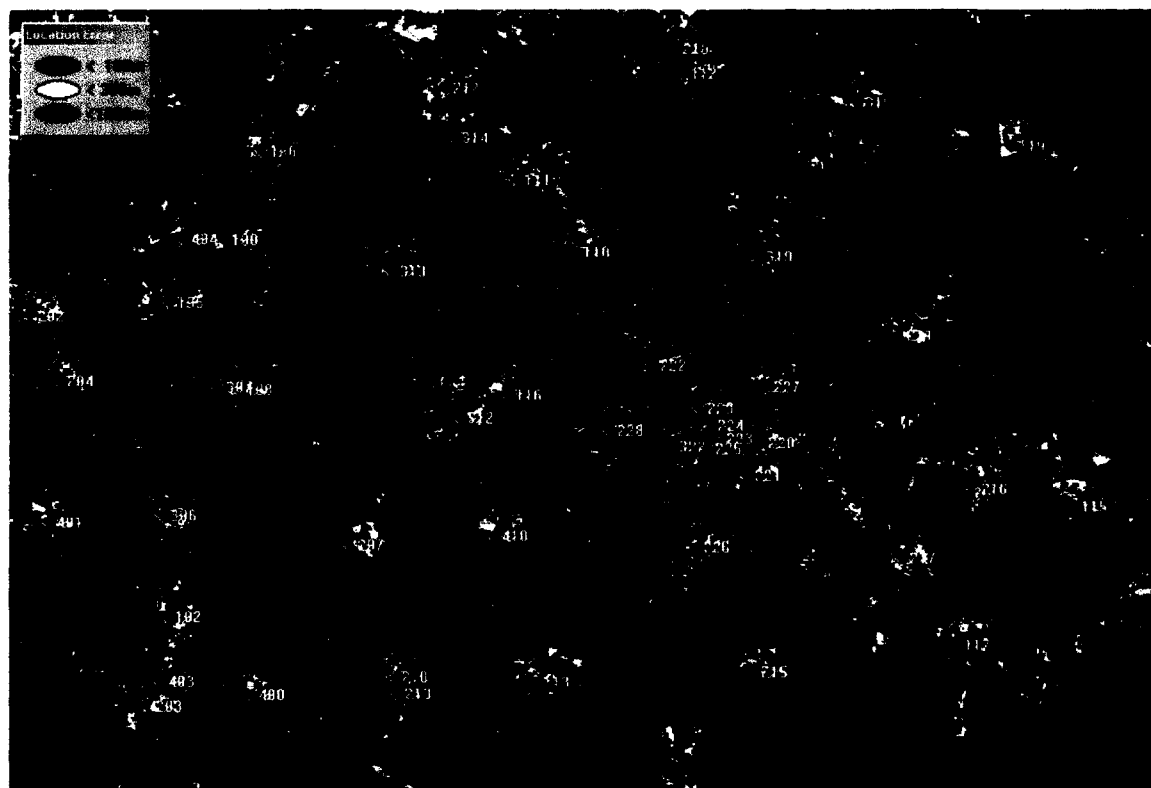


Figure 2-7. Zoomed Core Area in Eastern Region Used for Statistics

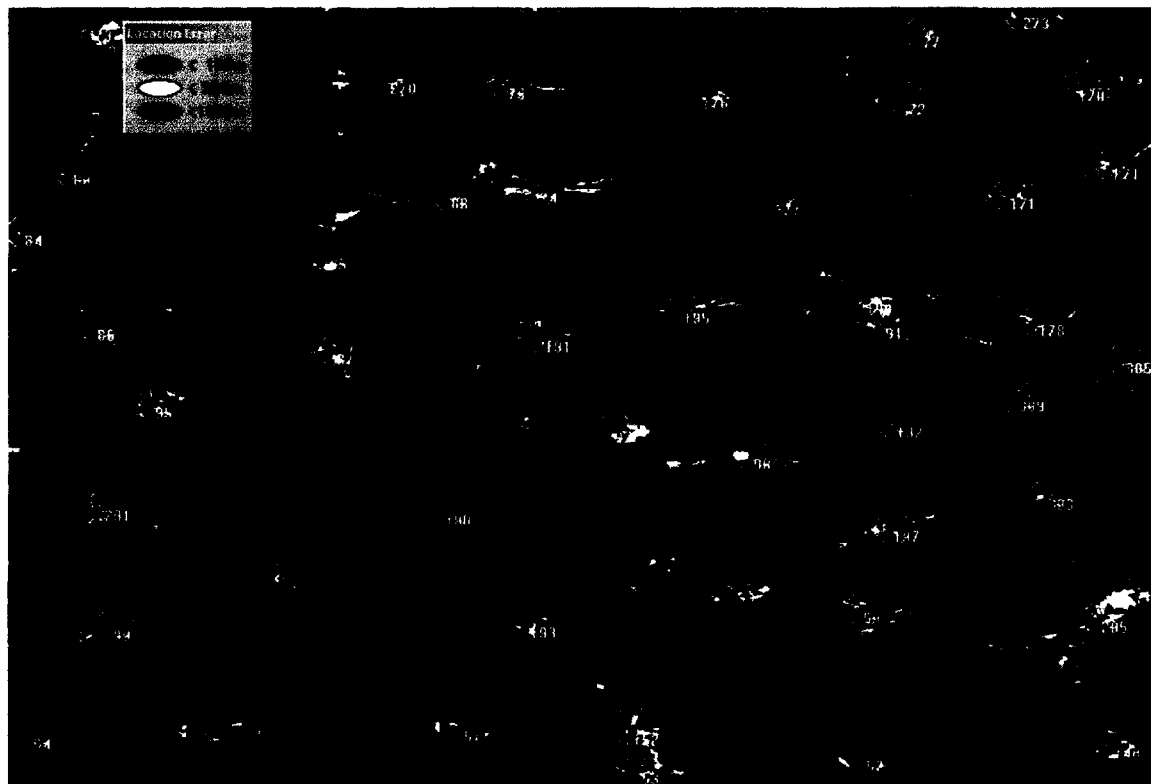


Figure 2-8. Zoomed Core Area in Western Region Used for Statistics

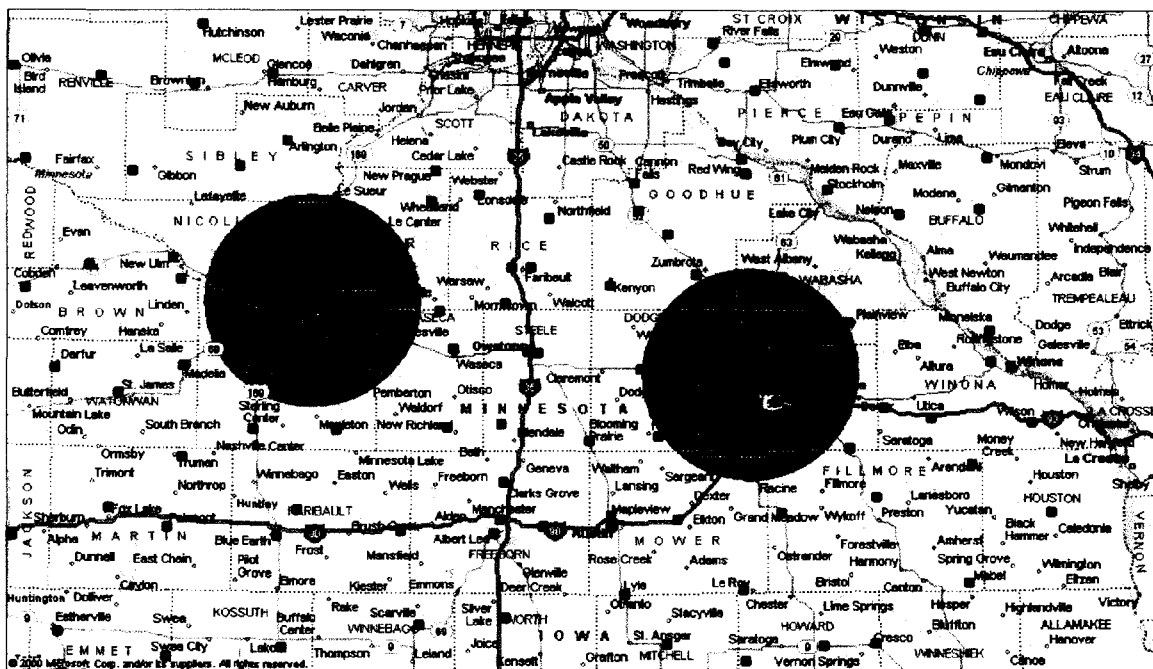
**Table 2-1. Summary of Location Performance Statistics for Zoomed Core Areas in the Eastern and Western Regions.**

	Yield	For covered pts. % < 100 Meter	For covered pts. % < 1000 Meter	67 Percentile (for covered pts.)	95 Percentile (for covered pts.)
Minnesota- Eastern Zoomed Core Area	68.7%	80%	95%	26.54	1061.9
Minnesota- Westerns Zoomed Core Area	54.1%	69%	94%	58.33	1084.5

### 3. Deployment Recommendation

Based on the previous coverage prediction, two areas show good potential for reasonable location coverage and accuracy. As shown in Figure 3-1, these areas are centered around the cities of Rochester and Mankato, and each cover approximately 2000 square miles.

It is recommended that the proposed network-based location system deployment in the market be done in two phases. In the initial phase (i.e., Phase 1) 13 sites in each of the two individual areas would be equipped with TDOA/AOA sensors as depicted in Figure 3-1.

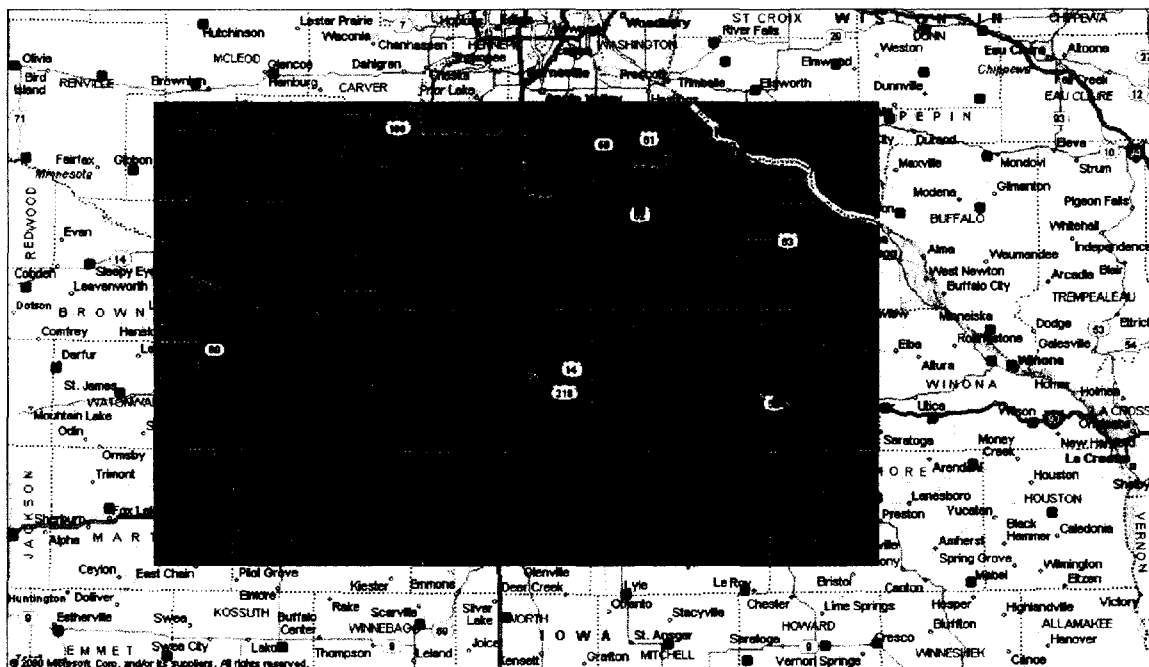


**Figure 3-1. Initial Deployment**



Extensive testing of the Initial Deployment area will lead to practical information about the operational characteristics of the selected location system. This information will be utilized in the optimization of the prediction models, and will lead to a more precise representation of the overall location system. The location network can then be expanded to cover areas where the optimized model shows acceptable location performance.

The results of the previous prediction show that the next logical expansion area would be the area that connects the regions of the Initial Deployment. The expanded area shown in Figure 3-2 consists of about 70 cell sites and covers approximately 9600 square miles.



**Figure 3-2. Phase 2 – Expanded Deployment**

#### 4. Conclusion

The analysis shows that even under best case assumptions, a network-based location solution will not meet the FCC E9-1-1 requirements in a substantial share of Midwest Wireless' markets. Location coverage as a percentage of the overall cellular coverage is fairly poor, even when not considering the boundary areas. Furthermore, the location performance where location coverage exists does not meet the FCC accuracy requirements.

Nevertheless, while network based location solutions do not meet the FCC requirements throughout the expansive rural areas of Midwest's markets, they may still provide beneficial coverage in those areas that have clusters of cell sites. It is therefore recommended that an initial deployment in two areas surrounding the cities of Rochester and Mankato take place before expansion to a broader region. Upon deployment in those areas, careful field testing will yield

a better characterization of the actual performance of the selected network-based location system. If the performance appears to promise reasonable coverage when extended beyond the initial areas, the second deployment stage will be to expand the footprint to a rectangular region centered around I-35, which incorporates the two initial "circles" but includes 70 cell sites and 9600 square miles.

Unfortunately, the inescapable laws of physics prohibit a commercially viable deployment of a network based location system that mimics the cellular coverage in the rural settings of the Midwest network.

**B. Nortel letter**

July 16, 2001

Brian Fingerson  
Midwest Wireless Communications  
2000 Technology Drive  
P.O. Box 4069  
Mankato, MN 56002-4069

Re: E911 Phase 2 core network technology and CALEA punch list functionality

Dear Brian Fingerson:

In this letter, Nortel Networks details its plans for making the E911 Phase 2 core wireless network technology (E911 technology) and the CALEA punch list functionality available.

### **E911**

Nortel Networks is committed to its part in enabling an end-to-end, E911 Phase 2 location information solution. As explained in this letter, Nortel Networks will supply the E911 technology enabling wireless carriers using its DMS-MTX switch, when interworking with other parties and technologies, to convey location information to the Public Safety Answering Point (PSAP).<sup>1</sup> Despite diligent development efforts, the E911 technology will be made generally available after October 1, 2001 as detailed in this letter.<sup>2</sup>

### **Required Components and Availability Details**

The E911 technology for use with the DMS-MTX platform requires a combination of hardware and software which Nortel Networks has designed to operate in accordance with the E911 applicable J-STD-036 standard. The functional elements constituting the Nortel Networks E911 technology are switch software, RF Access system software, Mobile Positioning Center (MPC) and Positioning Determining Entity (PDE).

The E911 technology elements will be made generally available by Nortel Networks according to the following schedule.

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<sup>1</sup> The Nortel Networks DMS-MTX switch is generally used by carriers to support TDMA and CDMA wireless protocols. Note that the E911 technology does not support Satellite Assisted Mobile Positioning Systems (SAMPS) based TDMA handset solutions. This handset solution is not supported because Nortel Networks understands that no handset vendor plans market introduction of a SAMPS enabled handset.

<sup>2</sup> By generally available, Nortel Networks means that the product has been adequately tested, any corrections made and offered commercially to all carriers desiring to purchase or license the product or software.

Component	Role	GA Date
MTX10	Switch software	Q4 2001
NBSS10.1	RF access subsystem	Q4 2001

Nortel Networks will make its combined MPC/PDE generally available in Q2 2002. Because the functions performed by the MPC/PDE are standards based, carriers using the Nortel Networks MTX platform may procure the necessary technology from other vendors and need not wait until Nortel Networks makes its MPC/PDE available to deploy E911. Finally, IOS version 4.0 must be deployed in carriers' networks with equipment from multiple vendors. The IOS software will become generally available in Q1 2002.

This schedule represents Nortel Networks' current plan. This plan could be altered by a number of factors, including unavailability of handsets for testing and resolution of technical issues identified through interoperability testing of the E911 technology with other vendors' technology contributions.

Even after general availability, carriers will need time to deploy the solution across the portions of their networks covered by validated PSAP requests.

#### Standards

As noted, the E911 technology is standards based. Applicable standards were only approved and published last year. Generally, 18 to 24 months are needed between standard adoption and development of compatible technology. As you will note from the discussion in the above section entitled "Required Components and Availability Details", Nortel Networks has bested or equaled the usual timelines for delivery of functionality after a standard is published.

#### Field Trial

Nortel Networks endorses an end-to-end field trial before a more extensive roll-out of the E911 technology takes place. The end-to-end field trial is important because, to address the overall goal of the delivery of location information to a PSAP, the E911 technology must successfully interwork with the E911 components supplied by other vendors as well as technologies supplied by other necessary parties, such as the location technology provider and the Local Exchange Carrier.

The successful conclusion of the trial will provide a validated solution across all necessary technologies and parties. To deploy a solution without an end-to-end field trial could lead to remedying the same issues multiple times in a serial fashion. Nortel Networks does not have the resources to deploy the E911 technology and then correct issues, that may well be identical, simultaneously.

Other necessary parties, such as the location solution vendors and Local Exchange Carriers and even wireless carriers, may have similar limitations.

## **CALEA**

Nortel Networks will make six punch list items available in generic software release MTX10. Each item will be individually toggled. As noted above, the MTX10 generic software release will become generally available in Q4 2001, shortly after the initial FCC compliance date of Sept. 30, 2001. Any hardware necessary to achieve compliance with the punch list requirements is available now.

Nortel Networks has moved diligently to develop the CALEA punch list functionality since the standards were adopted for the punch list items in April, 2000. Nortel Networks will begin trialing the CALEA software later this summer with several customers. Nortel Networks plans to test the MTX10 CALEA software with the FBI later this year.

Nortel Networks plans to shortly provide the FCC with its delivery schedule for E911 technology and the CALEA punch list functionality. The FBI will be presented with a copy of the Nortel Networks presentation for purposes of demonstrating when the punch list features will be made available. Your company may want to contact the FBI about CALEA flexible deployment and seek an extension from the FCC in light of the availability of MTX10 after the Sept. 30 CALEA compliance date.

If you should have any questions, please contact Tony Smith, Director, Wireless Regulatory Affairs, Nortel Networks at (972) 685-8779.

Sincerely,

***Alysen Northern***

Nortel Networks  
Senior Account Manager

## CERTIFICATE OF SERVICE

I, Loren Costantino, an employee in the law offices of Lukas, Nace, Gutierrez & Sachs, Chartered, do hereby certify that I have on this 28<sup>th</sup> day of September, 2001, sent by hand-delivery, a copy of the foregoing PETITION FOR TEMPORARY WAIVER OF THE E-911 PHASE II ENHANCED WIRELESS SERVICES to the following:

Thomas Sugrue, Chief  
Wireless Telecommunications Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W. Room 3-C252  
Washington, D.C. 20554

Jay Whaley  
Wireless Telecommunications Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W. Room 3-C207  
Washington, D.C. 20554

Jennifer Tomchin  
Wireless Telecommunications Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W. Room 3-C122  
Washington, D.C. 20554

A handwritten signature in black ink, appearing to read "Loren Costantino", written over a horizontal line.

Loren Costantino